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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,040	08/13/2001	Christopher Robert Eccles	13121US01	9447
7590	08/20/2004		EXAMINER	
Lawrence M Jarvis McAndrews Held & Malloy 500 W Madison Suite 3400 Chicago, IL 60661			PALABRICA, RICARDO J	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/830,040	ECCLES, CHRISTOPHER ROBERT
Examiner	Art Unit	
Rick Palabrida	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 28 June 2004.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 2,3,5-26 and 28-36 is/are pending in the application.  
4a) Of the above claim(s) 5,20,21,23,30 and 33-35 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 2, 3, 6-19,22,24-26,28,29,31,32 and 36 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a))

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

**DETAILED ACTION**

1. Applicant's 6/25/04 Amendment , which directly amended claim 2 and traverses the rejection of claims in the 12/11/03 Office Action, is acknowledged. Applicant's arguments filed in said Amendment have been fully considered but they are not persuasive, as discussed in detail below.

2. Applicant alleges in his traverse of the rejections based on 35 U.S.C. 101 and 35 U.S.C. 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs that:

a. The claimed invention does not relate to cold fusion, and although the written description refers in part to energy released from fusion, the amount of fusion energy produced is nominal compared with the energy released when the electron drops to a lower energy level.

*The Examiner disagrees. Applicant provides more than cursory discussion of cold fusion in the specification and in the claims. For example, states that, “[B]y introducing deuterium of diminished electron-path radius into a plasma discharge which is confined within the water in the vessel itself, fusion may be initiated. Temperatures of the order of 6000K are obtained within certain plasma discharges and this, coupled with multiple quantum transitions to produce deuterium of diminished electron-path-radius, produces substantial yield of energy from the two-stage process.” (see page 13, lines 1+). Also, claim 32 is direct to fusion of hydrogen isotopes. Unless the Applicant defines “nominal” and “substantial” to be synonymous, there is no support to his allegation that his invention is not related to cold fusion. Accordingly, the rejection of claims under*

*35 U.S.C. 101 in section 4 of the 12/11/03 Office Action remains and incorporated herein.*

b. The Daddi and Conte report was not commissioned to repeat the method described by the present application, but to:

- provide background information confirming the scientific principles exploited in the method of the claimed invention;
- give independent evidence that a significant proportion of the scientific community accept that the sub-ground energy levels exist.

*The Examiner disagrees. First, the report has no probative value because it is not in the form of an affidavit or declaration to support the applicant's claims (see MPEP 716.01(c)). The same remark applies to the other reports cited by the Applicant. Second, scientific principles being "exploited" in the method are not the same as scientific principles "directly used" in the method. Third, Applicant's statement regarding a "significant proportion" of the scientific community accepting sub-ground energy levels is again not entitled to any weight because this conclusory statement represents only an opinion by the Applicant. What is the criterion for "significant proportion"? Several practitioners in the field do not support the theory advocated by the Applicant, as discussed in sections that follow.*

c. Applicant alleges that Riley's apparatus is the same as Applicant's. However, his arguments have no support in Riley's report; instead they are based on Applicant's opinion and unfounded extrapolations. For example, the

Examiner pointed out that Riley's apparatus does not depict an insulating layer.

Applicant argues that Riley's insulating layer is described on page 2 of the report.

*The Examiner disagrees. Riley states, "[W]hen performing calorimetric measurements the cells were placed in an insulated container in order to minimise heat loss." This statement does not prove, for example, that Riley used the same insulation material, the same thickness of insulation or the same degree of heat loss minimization as the Applicant.*

*The same remark applies to the electrodes where Riley does not provide any dimensions for the cathode and anode. Applicant alleges, for example, that Riley's "sharp tungsten wire" has the same dimensions as the claimed cathode, because these are standard dimensions for small-scale apparatus. What is this "standard" (U.S., British, Japanese or what) and how "small" is small-scale?*

*The Applicant alleges that any difference between the Riley electrodes and his electrodes would not affect the operability claim. This statement has no probative value because it constitutes no more than uncorroborative statements of the applicant (see MPEP 716.01(c)).*

*The Examiner agrees that Applicant's electrolyte concentration is the same as Riley's.*

In view of the above, the Examiner maintains that none of the reports cited above by the Applicant provides proof of utility of his claimed invention. Accordingly, the Examiner's reasons for rejection of claims based on section 2 of

the 12/11/03 Office Action remains and incorporated herein, with the exception of the electrolyte concentration matter.

3. As stated above, Examiner will now provide further showing that Applicant's allegations that: a) "significant portion of the scientific community accept that sub-ground energy levels exist"; and b) he has provided reliable evidence supporting both the underlying principles upon which his invention is based and the operability of the invention itself, are not convincing.

In Paper No. 13, Applicant alleges that his specification and Mills et al. (U.S. 6,024,935) provide empirical evidence of the existence of energy states below ground state in hydrogen and/or deuterium atoms. Several practitioners in the art do not agree that these "fractional" states exist and have conducted experiments that did not observe Mill's report of "excess heat." For example:

- Erik Krieg (Reference U) shows that well-established physical laws, including the uncertainty principle, would have to be violated to account for "fractional states."
- Dave Howe (Reference V) states that Mill's experimental results are most likely flawed. He said that the fact that the magnitude of Mill's experimental results decreases with time is "consistent with refinement of the measurement and experimental protocols, i.e., as his measurements get better, they approach the real result: zero."
- EarthTech International, Inc. (Reference W) ran more than 15 experiments from October 9, 1997 to March 9, 2001, in an attempt to

replicate Mill's Light Water Calorimetric Experiment. The conclusion from the 10/9/97 run was no detectable sign of excess heat. EarthTech further states, "a 10% excess ... less than any of the reported confirmations of Mill's experiment showed ... would have produced a prominent positive signal in our experiment." Their conclusion in the 3/9/01 run was the same, i.e., their effort to replicate Mill's light water Ni electrolysis experiments produced uniformly negative results.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 2, 3, 6-19, 22, 24-26, 28, 29, 31, 32 and 36 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility. The reasons that the invention as disclosed is inoperative are the same as the reasons set forth in section 4 of the 12/11/03 Office Action and sections 2 and 3 above, and these reasons are accordingly incorporated herein.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

5. Claims 2, 3, 6-19, 22, 24-26, 28, 29, 31, 32 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reasons are the same as that given in section 4 above, which reasons are incorporated herein. Also, there is no enabling disclosure as to how and in what manner transitions of hydrogen and/or deuterium atoms to a sub-ground energy state can occur.

6. Claims 2, 3, 6-19, 22, 24-26, 28, 29, 31, 32 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague and indefinite, and their metes and bounds cannot be determined for the reasons given in section 5 above, which reasons are incorporated herein.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 6, 9, 10, 11, 13, 22, 24, 25, 28, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Omori (JP 3-150494) or Kubota (JP 2-275397), in view of Caldwell et al. (U.S. 4,428,805). Either one of Omori or Kubota discloses the Applicant's claims except for the electrolyte concentration.

Either one of these references a nuclear fusion device and method for releasing energy in an aqueous cell containing heavy water by generating a plasma discharge underwater by a voltage of at least 20 Kv.

Caldwell et al. teach the use of an electrolyte such as KOH to provide adequate conductivity to an aqueous electrolytic cell (see column 10, lines 50+). They further teach the concentration of the electrolyte ranges from concentration to the lower limit dictated by economics (see column 11, lines 5+).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by either one Omori or Kubota, by the teaching of Caldwell et al., to use an electrolyte containing potassium and a concentration between 1 mMol and 20 mMol, to gain the advantages thereof (i.e., adequate conductivity), because such modification is no more than the use of well-known expedients within the art.

As to the cited concentration of the electrolyte, this is a matter of optimization within prior art conditions or through routine experimentation (see

MPEP 2144.05 II.A). Note the teaching of Caldwell et al. that the electrolyte concentration is a matter of economics.

8. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Omori-Caldwell et al. combination. Omori teaches applying an intermittent plasma discharge using a capacitance circuit.

9. Claims 14, 15 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Kubota-Caldwell et al. combination. Kubota teaches the use of a heat exchanger.

As to claim 36, the applicant admits that titanium is a catalyst that is capable of absorbing ( $m^*27.2$ ) eV (see page 9 of the specification). Kubota discloses the use of titanium. See also section 3 above.

Kubota also uses a voltage as high as 2 million volts (see page 5).

10. Claims 16, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of the Omori-Caldwell et al. or Kubota-Caldwell et al. combination, as applied to claims 2, 6, 9, 10, 11, 13, 22, 24, 25, 28, 29 and 32 above, and further in view of either one of Yamazaki (EP 0393461) or Van Noorden (NL 8902-962-A). Either one of the Omori-Caldwell et al. or Kubota-Caldwell et al. combination discloses the applicant's claims except for the use of a magnetic field. Either one of Yamazaki or Van Noorden teaches the application of a magnetic field in nuclear fusion to enhance the process.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by either the Omori-Caldwell et al. or Kubota-Caldwell et al. combination, by the teaching of either one of Yamazaki or Van Noorden, to include the application of a magnetic field, to gain the advantages thereof (i.e., more effective fusion process), because such modification is no more than the use of a well-known expedient in nuclear fusion art.

11. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Omori-Caldwell et al. combination. Note that Omori discloses that several schemes for the control circuit are possible, including periodic application of the charge from the capacitors 25 over a prescribed period (e.g., see page 9 of Omori '494). As to the limitation in the claim regarding the duty cycle, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A).

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Kubota-Caldwell et al. combination. As to the limitation in the claim regarding a current density of at least 400,000 A/m<sup>2</sup>, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A). Note that Kubota discloses a voltage that is as high as 2 Million volts.

***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 6:30-5:00, Mon-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP  
August 12, 2004

3641  
JACK KEITH  
PRIMARY EXAMINER